

Commonwealth of Kentucky
Division for Air Quality
PERMIT STATEMENT OF BASIS
TITLE V DRAFT NO. V-03-049
COMMONWEALTH ALUMINUM LEWISPORT, LLC
LEWISPORT, KY.
JANUARY 12, 2004
APRIL J. WEBB, REVIEWER
PLANT I.D. # 21-091-00010
APPLICATION LOG # F139 (50143)

SOURCE DESCRIPTION:

Commonwealth Aluminum, Lewisport, Inc. (CALI) owns and operates an aluminum rolling mill facility. CALI manufactures aluminum coil from purchased aluminum sows, as well as purchased and in-plant generated scrap (including customer returns, both painted and bare scrap). Clean incoming material is generally converted to molten aluminum in one of eight melt furnaces in the South Casthouse, degassed and fluxed to remove entrapped hydrogen and metallic impurities, and cast into ingots. Purchased dirty scrap is received at the scrap metal preparation area, shredded, dried, and delacquered, and transferred to one of the melt furnaces in the North Casthouse. Molten aluminum from the North Casthouse melters is transferred to one of four holding furnaces, fluxed in separate degas/fluxing units, and then cast into ingots. Molten aluminum from the South Casthouse melters is transferred to one of the seven holding furnaces, fluxed in the furnace using graphite lance tubes, and in some cases degassed in separate degas units, prior to being cast into ingots.

Impurities in the aluminum removed by fluxing are skimmed from the surface of the molten metal in the form of aluminum dross which is cooled in rotary coolers in both Casthouses and, if the rotary dross coolers are not operational, on an ingot lined dross cooling pad located in the South Casthouse. The cooled dross is then shipped off-site for recovery of any aluminum which may be contained in the dross load. The recovered aluminum is returned to the plant in over-the-road crucible trucks, or in sow form.

Ingots to be rolled are first transferred to an ingot scalper machining area, where the rough, grainy surface of the ingot, created by the casting process, is removed from both longitudinal rolling surfaces. In some cases, the ingots may also be scalped on both perpendicular longitudinal edges.

The scalped ingots are then transported to one of 12 soaking pits or one of two pusher tunnel furnaces. The soaking pits and tunnel furnaces heat the scalped ingot to a predetermined temperature for a specified length of time in order to homogenize the molecular structure of the ingot. This homogenizing process produces an internal grain structure that facilitates the subsequent rolling operations.

Once the ingots are homogenized, they are transported to the reversing mill. The reversing mill reduces the thickness of the ingot through a series of "back and forth" passes through a set of work rolls until a continuous slab approximately one inch thick is formed. Once the continuous slab has been produced, it is sheared on both ends to make the ends square and transferred to the 3-stand rolling mill. The three stand mill processes the slab through three consecutive thickness reduction passes, in series, followed by coiling the end pass product into a coarse gauge coil.

The coarse gauge coil is then further reduced in thickness by one of three cold rolling mills to produce a coil which meets the customer's specifications. A given coil may pass through just the two stand tandem cold mill, or one of the single stand mills, but is usually rolled several times on all three mills at the plant.

Between cold mill passes, the metal is sometimes heated and cooled in an annealing

furnace to restore workability lost during cold rolling.

Once the specified gauge has been reached, the coil then proceeds to one of four processing operations in coil finishing:

1. Processed as unpainted coil
2. Processed as slit coil
3. Painted
4. Packed and shipped.

During the slitting operation, coils as wide as 75 inches are cut to widths as narrow as 6 inches. In some cases, an oil coating can be applied electrostatically to both sides of the coil if specified by the customer. The coil may also be routed to an embosser, where a specified pattern is rolled onto the metal surface. The paintline processes coil as a continuous strip through the coater room(s). The leading edge of the coil is welded to the trailing edge of another coil to allow continuous runs without having to re-thread the line. The coil is then passed through a series of cleaning operations to remove oil, dirt, and oxides, and then acid etched to assure good paint adhesion. Once cleaned, the coil passes through two coating rooms which may apply paint to one or both sides of the coil. In some cases, the coil may undergo a second paint application station after the first coating has been cured. The paint is then cured in a six zone curing oven, then cooled with an air and water quench. The coil is then packed and shipped, re-routed back to the South Casthouse for re-melt, shipped off-site for re-melt, or routed back to the coater rooms to receive a second coating of paint.

If a second coating is applied, the paint is cured in a second six zone curing oven before being routed to a re-wind station where it is inspected and wound for packaging and shipping, or routed for re-melt.

COMMENTS:

Emission factors are from AP-42, stack tests, and material balances.

EMISSION AND OPERATING CAPS DESCRIPTION:

Due to the emission limitations imposed by the Secondary Aluminum MACT, the self-imposed limits have been removed or changed for particulate emissions. Please see the attached spreadsheet for revised particulate emission totals.

PERIODIC MONITORING:

South Casthouse Emission Points

Group 1

01(SCH-1)	Remelt Furnace #1
02(SCH-2)	Melt Furnace #2 and Holding Furnace #1
03(SCH-3)	Melt Furnace #3 and Holding Furnace #2
04(SCH-4)	Melt Furnace #4 and Holding Furnace #3
05(SCH-5)	Melt Furnace #5 and Holding Furnace #4
06(SCH-6)	Melting Furnace #6
07(SCH-7)	Holding Furnace #5
08(SCH-8)	Melting Furnace #7
09(SCH-9)	Holding Furnace #6
10(SCH-10)	Melting Furnace #8
11(SCH-11)	Holding Furnace #7
25(SCH-12)	Dross Cooler

APPLICABLE REGULATIONS:

401 KAR 61:020, Existing process operations commenced before July2, 1975

401 KAR 59:010, New process operations commenced on or after July 2, 1975

401 KAR 63:010, Fugitive emissions

401 KAR 63:002, 40 CFR Part 63 national emission standards for hazardous air pollutants, incorporating 40 C.F.R. 63.1500 to 63.1519 (Subpart RRR), "National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production", as published in the Code of Federal Regulations, 40 C.F.R. Part 63, July 1, 2002;

Specific Monitoring Requirements:

Pursuant to 401 KAR 59:010 and 61:020

To provide reasonable assurance that the visible emission limitations are being met the permittee shall:

- i) Determine the opacity of emissions during operation from each stack or vent by Reference Method 9 annually, or more frequently if requested by the Division.
- ii) Perform a qualitative visual observation of the opacity of emissions from each stack/vent on a weekly basis and maintain a log of the observation. The log shall note:
 - 1) whether any air emissions (except for water vapor) were visible from the vent/stack,
 - 2) all emission points from which visible emissions occurred, and
 - 3) whether the visible emissions were normal for the process.
- iii) Determine the opacity of emissions by Reference Method 9 if qualitative visible emissions from any stack/vent are seen.

Pursuant to 40 CFR 63 Subpart RRR:

The permittee shall

1. Record the weight of each feed/charge using a measuring device or other procedure with accuracy of +/- 1%.
2. Check labels monthly to confirm that they are intact and legible
3. Set and maintain the chlorine flow delivery system throughout the fluxing period at or below the rate established during the performance test.
4. Calculate using equation 5 in 63.1512(o) and record the total reactive flux injection rate for each operating cycle or time period used in the performance test.
5. Initiate corrective action within 1 hour of a bag leak detection system alarm and complete the corrective action procedures in accordance with the OM&M plan for the rotary dross cooler baghouse.

South Casthouse Emission Points

Group 2

AB(SCH-12)

Dross Loadout

99(SCH-12)

Dross Cooling Pad

30(HR-1, HR-2, SCH-18)

Rolling surfaces ingot scalper, edge surfaces ingot scalper, and South Casthouse scalper chips pneumatic conveyor

APPLICABLE REGULATIONS:

401 KAR 61:020, Existing process operations commenced before July 2, 1975

401 KAR 59:010, New process operations commenced on or after July 2, 1975

401 KAR 51:017, Prevention of significant deterioration of air quality

401 KAR 63:010, Fugitive emissions

Specific Monitoring Requirements:

Pursuant to 401 KAR 59:010 and 61:020

To provide reasonable assurance that the visible emission limitations are being met the permittee shall:

- i) Determine the opacity of emissions during operation from each stack or vent by Reference Method 9 annually, or more frequently if requested by the Division.
- ii) Perform a qualitative visual observation of the opacity of emissions from each stack/vent on a weekly basis and maintain a log of the observation. The log shall note:
 - 1) whether any air emissions (except for water vapor) were visible from the vent/stack,
 - 2) all emission points from which visible emissions occurred, and
 - 3) whether the visible emissions were normal for the process.
- iii) Determine the opacity of emissions by Reference Method 9 if qualitative visible emissions from any stack/vent are seen.

North Cast House

22 (NCH-1)	W-1 Melt Furnace
12 (NCH-2)	W-6 Melt Furnace
14 (NCH-3)	W-5 Melt Furnace
15 (NCH-4)	C-4 Hold Furnace
16 (NCH-5)	C-3 Hold Furnace
17 (NCH-6)	C-2 Hold Furnace
18 (NCH-7)	C-1 Hold Furnace
A4 (NCH-8A)	W-2 Furnace Well
23 (NCH-9)	North Casthouse degassing and fluxing units (C1,C2,C3,C4)
24 (NCH-8)	North Casthouse rotary dross cooler
A3 (NCH-10)	W-2 Melt Furnace Burner Section

APPLICABLE REGULATIONS:

401 KAR 61:020, Existing process operations commenced before July 2, 1975

401 KAR 59:010, New process operations commenced on or after July 2, 1975

401 KAR 63:010, Fugitive emissions

401 KAR 63:002, 40 CFR Part 63 national emission standards for hazardous air pollutants, incorporating 40 C.F.R. 63.1500 to 63.1519 (Subpart RRR), "National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production", as published in the Code of Federal Regulations, 40 C.F.R. Part 63, July 1, 2002;

Specific Monitoring Requirements:

Pursuant to 401 KAR 59:010 and 61:020

To provide reasonable assurance that the visible emission limitations are being met the permittee shall:

- i) Determine the opacity of emissions during operation from each stack or vent by Reference Method 9 annually, or more frequently if requested by the Division.
- ii) Perform a qualitative visual observation of the opacity of emissions from each stack/vent on a weekly basis and maintain a log of the observation. The log shall note:
 - 1) whether any air emissions (except for water vapor) were visible from the vent/stack,
 - 2) all emission points from which visible emissions occurred, and
 - 3) whether the visible emissions were normal for the process.
- iii) Determine the opacity of emissions by Reference Method 9 if qualitative visible emissions from any stack/vent are seen.

Pursuant to 40 CFR 63 Subpart RRR:

The permittee shall

1. Record the weight of each feed/charge using a measuring device or other procedure with accuracy of +/- 1%.
2. Check labels monthly to confirm that they are intact and legible
3. Set and maintain the chlorine flow delivery system throughout the fluxing period at or below the rate established during the performance test.
4. Initiate corrective action within 1 hour of a bag leak detection system alarm and complete the corrective action procedures in accordance with the OM&M plan for the rotary dross cooler baghouse.
5. Maintain the 3-hour block average inlet temperature for each lime injected baghouse at or below the average temperature established during the performance test, plus 25 degrees Fahrenheit
6. Maintain free flowing lime in the hopper to the feed device at all times and maintain the lime feeder setting at the same level established during the performance test.

Scrap Metal Prep

19(SMP-1)	Primary aluminum scrap shredder, 2 delacquering furnaces, and secondary knife shredder and eddy current separator		
	SMP-1	Common stack serving SMP-1A thru 1D	
	SMP-1A	Primary Shredder BH Date commenced: July 6, 1979.	
	SMP-1B	Secondary Shredder BH Date commenced: August 11, 1999	
	SMP-1C	A Kiln Baghouse Date commenced: July 6, 1979.	
	SMP-1D	B Kiln Baghouse Date commenced: July 6, 1979.	

APPLICABLE REGULATIONS:

401 KAR 59:010, New process operations commenced on or after July 2, 1975

401 KAR 63:010, Fugitive emissions

401 KAR 63:002, 40 CFR Part 63 national emission standards for hazardous air pollutants, incorporating 40 C.F.R. 63.1500 to 63.1519 (Subpart RRR), "National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production", as published in the Code of Federal Regulations, 40 C.F.R. Part 63, July 1, 2002;

Specific Monitoring Requirements:

Pursuant to 401 KAR 59:010

To provide reasonable assurance that the visible emission limitations are being met the permittee shall:

- i) Determine the opacity of emissions during operation from each stack or vent by Reference Method 9 annually, or more frequently if requested by the Division.
- ii) Perform a qualitative visual observation of the opacity of emissions from each stack/vent on a weekly basis and maintain a log of the observation. The log shall note:
 - 1) whether any air emissions (except for water vapor) were visible from the vent/stack,
 - 2) all emission points from which visible emissions occurred, and
 - 3) whether the visible emissions were normal for the process.
- iii) Determine the opacity of emissions by Reference Method 9 if qualitative visible emissions from any stack/vent are seen.

Pursuant to 40 CFR 63 Subpart RRR:

The permittee shall

1. Record the weight of each feed/charge using a measuring device or other procedure with accuracy of +/- 1%.
2. Check labels monthly to confirm that they are intact and legible
3. Set and maintain the feed rates at or below the rate established during the performance test.
4. Initiate corrective action within 1 hour of a bag leak detection system alarm and complete the corrective action procedures in accordance with the OM&M plan.
5. Maintain the 3-hour block average inlet temperature for each lime injected baghouse at or below the average temperature established during the performance test, plus 25 degrees Fahrenheit
6. Maintain free flowing lime in the hopper to the feed device at all times and maintain the lime feeder setting at the same level established during the performance test.

Hot Rolling

Group 1

30(HR-1, HR-2, SCH-18)	Rolling surfaces ingot scalper, edge surfaces ingot scalper, and South Casthouse scalper chips pneumatic conveyor
31(HR-3)	Homogenization soaking pits #1 and #2
32(HR-4)	Homogenization soaking pits #3 and #4
33(HR-7)	Homogenization soaking pit #7
34(HR-8)	Homogenization soaking pit #8
35(HR-9)	Homogenization soaking pit #9
36(HR-10)	Homogenization soaking pit #10
37(HR-5)	Homogenization soaking pit #5
38(HR-6)	Homogenization soaking pit #6
39(HR-11)	Homogenization soaking pit #11
40(HR-12)	Homogenization soaking pit #12
41(HR-13)	East Sunbeam C-204-79 tunnel furnace
42(HR-14)	West Sunbeam C-204-79 tunnel furnace
97 (HR-15)	573 Reversing Mill
96(HR-16)	3-stand hot aluminum rolling mill

Applicable Regulations

401 KAR 59:010, New process operations commenced on or after July 2, 1975

401 KAR 61:020, Existing process operations commenced before July 2, 1975

401 KAR 63:010, Fugitive emissions

Specific Monitoring Requirements:

Pursuant to 401 KAR 59:010 and 61:020

To provide reasonable assurance that the visible emission limitations are being met the permittee shall:

- i) Determine the opacity of emissions during operation from each stack or vent by Reference Method 9 annually, or more frequently if requested by the Division.
- ii) Perform a qualitative visual observation of the opacity of emissions from each stack/vent on a weekly basis and maintain a log of the observation. The log shall note:
 - 1) whether any air emissions (except for water vapor) were visible from the vent/stack,
 - 2) all emission points from which visible emissions occurred, and
 - 3) whether the visible emissions were normal for the process.

- iii) Determine the opacity of emissions by Reference Method 9 if qualitative visible emissions from any stack/vent are seen.

Hot Rolling

A2(HR-18) Oil house boiler #2

Coil Coating

65(CC-2-CC-7) Burners #1-6 for caustic cleaning line (for 656 paint line)

APPLICABLE REGULATIONS:

Regulation 401 KAR 59:015, New indirect fired heat exchangers, applicable to an emissions unit with a rated capacity less than 250 mmBTU/hr which commenced on or after April 9, 1972.

Regulation 401 KAR 60:005, incorporating by reference Regulation 40 CFR 60, Subpart Dc, Standards of performance for small industrial-commercial-institutional steam generating units, for units less than or equal to 100 MMBTU/hour but greater than or equal to 10 MMBTU/hour commenced after June 9, 1989.

Specific Monitoring Requirements:

- a) The permittee shall monitor the natural gas usage on a daily basis.
- b) The permittee may use the fuel supplier certificate to meet the sulfur dioxide emission monitoring requirements specified in 40 CFR 60, Subpart Dc.

Hot Rolling

71(HR-17) Oil house boiler #1

APPLICABLE REGULATIONS:

401 KAR 61:015, Existing indirect heat exchangers

Specific Monitoring Requirements:

The permittee shall measure the rate of fuel burned for each fuel daily and determine the heating value and ash content of each fuel used once per week.

Cold Rolling

44 (CR-1) 588 2 stand cold rolling mill

45 (CR-2) 589 single stand cold rolling mill

46 (CR-3) 590 single stand cold rolling mill

APPLICABLE REGULATIONS:

401 KAR 61:020, Existing process operations commenced before July 2, 1975

401 KAR 59:010, New process operations commenced on or after July 2, 1975

401 KAR 63:010, Fugitive emissions

Specific Monitoring Requirements:

Pursuant to 401 KAR 59:010 and 61:020

To provide reasonable assurance that the visible emission limitations are being met the permittee shall:

- i) Determine the opacity of emissions during operation from each stack or vent by Reference Method 9 annually, or more frequently if requested by the Division.

- ii) Perform a qualitative visual observation of the opacity of emissions from each stack/vent on a weekly basis and maintain a log of the observation. The log shall note:
 - 1) whether any air emissions (except for water vapor) were visible from the vent/stack,
 - 2) all emission points from which visible emissions occurred, and
 - 3) whether the visible emissions were normal for the process.
- iii) Determine the opacity of emissions by Reference Method 9 if qualitative visible emissions from any stack/vent are seen.

Annealing

Annealers: The annealers process coils from various mills and process several racks of coils ranging from 103.8 to 207.6 tons in weight. Annealing times vary from 8.71 hours to 23.12 hours depending on the desired temper. The following are the annealing sources.

Emission Point Number	Description	MMBTU/hr gas useage	Construction Commenced
47 (A-1)	Furnace 1,2,3 Atmosphere	NA	12/15/1965
52 (A-2)	Furnace 1,2 Gas Combustion	24	12/15/1965
53 (A-3)	Furnace 3 Gas Combustion	12	12/15/1965
48 (A-4)	Furnace 4 Atmosphere	NA	12/15/1965
48 (A-5)	Furnace 13 Atmosphere	NA	12/15/1965
48 (A-6)	Furnace 14 Atmosphere	NA	12/15/1965
49 (A-7)	Furnace 10 Atmosphere	NA	3/31/1979
56 (A-8)	Furnace 10 Gas Combustion	24	3/31/1979
50 (A-9)	Furnace 11 Atmosphere	NA	3/31/1979
57 (A-10)	Furnace 11 Atmosphere	NA	3/31/1979
51 (A-11)	Furnace 12 Atmosphere	NA	3/31/1979
58 (A-12)	Furnace 12 Gas Combustion	24	3/31/1979
86 (A-13)	Furnace 5,6 Atmosphere	NA	12/15/1965
87 (A-14)	Furnace 5,6 Gas Combustion	24	12/15/1965
88 (A-15)	Furnace 7,8 Atmosphere	NA	12/15/1965
89 (A-16)	Furnace 7,8 Gas Combustion	24	12/15/1965
90 (A-17)	Furnace 9 Atmosphere	NA	12/15/1965
91 (A-18)	Furnace 9 Gas Combustion	24	12/15/1965
54 (A-19)	Furnace 13,14 Gas Combustion	24	12/15/1965
55 (A-20)	Furnace 4 Gas Combustion	12	12/15/1965

Control Equipment : None

APPLICABLE REGULATIONS:

401 KAR 50:055, General compliance requirements

401 KAR 63:010, Fugitive emissions

Specific Monitoring Requirements:

The permittee shall monitor the amount of natural gas used and the hours of operation.

Coil Coating

66(CC-1) Caustic cleaning line (for 656 paint line)

67(CC-8) Acid etch and waterbased coil coating line (infrared curing oven)

APPLICABLE REGULATIONS:

401 KAR 59:010, New process operations

Specific Monitoring Requirements:

To provide reasonable assurance that the visible emission limitations are being met the permittee shall:

- i) Determine the opacity of emissions during operation from each stack or vent by Reference Method 9 quarterly, or more frequently if requested by the Division.
- ii) Perform a qualitative visual observation of the opacity of emissions from each stack/vent on a daily basis and maintain a log of the observation. The log shall note:
 - 1) whether any air emissions (except for water vapor) were visible from the vent/stack,
 - 2) all emission points from which visible emissions occurred, and
 - 3) whether the visible emissions were normal for the process.
- iii) Determine the opacity of emissions by Reference Method 9 if qualitative visible emissions from any stack/vent are seen.

Coil Coating

68(CC-9) 656 Prime Coat and finish coat roller

APPLICABLE REGULATIONS:

401 KAR 60:005, 40 CFR Part 60 standards of performance for new stationary sources incorporating by reference 40 CFR 60, Subpart TT, Standards of performance for metal coil surface coating.

401 KAR 63:002. 40 C.F.R. Part 63 national emission standards for hazardous air pollutants incorporating by reference) 40 C.F.R. 63, Subpart SSSS, "National Emission Standards for Hazardous Air Pollutants: Surface Coating of Metal Coil" ---Compliance by June, 2005

Specific Monitoring Requirements:

Pursuant to 40 CFR 60, Subpart TT, the permittee shall maintain the temperature monitor on the thermal incinerator with an accuracy of ± 2.5 degrees Celsius or ± 0.75 percent of the temperature being measured expressed in degrees Celsius, which is greater.

Pursuant to 40 CFR 63 Subpart SSSS:

The permittee on and after June 10, 2005 shall perform monitoring in accordance with 63.5150

Bare Coil Finishing

83 (BCF-1) 652 Tension Leveler fugitive

84 (BCF-2) 653 Tension Leveler fugitive

98 (BCF-3) 661 Pressure Leveler fugitive

APPLICABLE REGULATIONS:

401 KAR 50:055, General compliance requirements

401 KAR 63:010, Fugitive emissions

Specific Monitoring Requirements:

The permittee shall monitor the amount of mineral spirits used and the hours of operation.

OPERATIONAL FLEXIBILITY:

NA

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements.

At the issuance of this permit, Kentucky has not incorporated these provisions in its air quality regulations.